

REMARKS

Claims 1-9 and 12-13 are pending in this application. The Examiner rejected Claims 1-9 under 35 U.S.C. § 102(b) and withdrew newly submitted Claims 12 and 13. No claims have been previously allowed.

Request for Reconsideration of Election/Restriction Requirement

In withdrawing Claims 12 and 13 from further consideration, the Examiner alleged that Claim 12 pertains to a device with a first main buried electrode structure, and Claim 13 pertains to a device such that the inner surface of the fourth semiconductor region surrounds the side boundary surface. The Examiner further alleged that Claims 1-9 were constructively elected by original presentation.

The Applicant requests reconsideration of the restriction requirement because there are shared elements between Claims 1 and 7 and Claim 12. In particular, Claims 1 and 12 both recite a first semiconductor region, a third semiconductor region, and a fourth semiconductor region having similar characteristics. Although Claim 1 does not recite a first main electrode layer, Claim 7 recites a first main electrode layer.

Reconsideration is also requested because Claim 13 is directed to the same invention as Claim 1. The differences between Claim 1 and Claim 13 are due to the different claiming perspectives used.

It is submitted that the search and examination for Claims 1-9 and 12-13 would be overlapping and that it would be most efficient for these claims to be examined together. Furthermore, it is submitted that there is no undue hardship for the Examiner to examine Claims 12 and 13 along with Claims 1-9. Thus, it is requested that the restriction requirement be withdrawn and that the amendments shown above be entered with respect to Claims 12 and 13.

In order to be fully responsive to the office action, the Applicant provisionally elects Claims 1-9.

**Jambotkar Does Not Anticipate the
Invention of Claims 1-9 and 12-13**

Claims 1-9 were rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 4,264,857 to Jambotkar ("*Jambotkar*"). This rejection is traversed for the reasons discussed below.

Claim 1

The semiconductor device of Claim 1 requires, among other elements, a second semiconductor region of the first conductivity type being in metallurgical contact with the first semiconductor region at the lower end surface of the first semiconductor region.

The Examiner contended that *Jambotkar* teaches a device comprising a first semiconductor region of a first conductivity type, defined by a first end surface and a side boundary surface connecting the first and second end surfaces when viewed in section (Fig. 2A (16)); a second semiconductor region of the first conductivity type connected with the first semiconductor region at the second end surface (Fig. 2A (14)); a third semiconductor region of a second conductivity type connected with the first semiconductor region at the first end surface (Fig. 2A(12)); and a fourth semiconductor region having inner surface in contact with the side boundary surface when viewed in section and an impurity concentration lower than the first semiconductor region, configured such that the fourth semiconductor region is disposed between the second and third semiconductor region (Fig. 2A (10)).

However, region 14 of *Jambotkar* does not metallurgically contact region 16 because region 14 is used as a source region while region 16 is used as the drain region of a field effect transistor (see Column 2, lines 21-24). Although region 14 electrically contacts region 16 through an electrical connection, such as surface wiring, the regions are not in metallurgical contact because the regions are not connected via region-to-region contact. Therefore, *Jambotkar* fails to disclose a second semiconductor region of the first conductivity type being in metallurgical contact with the first semiconductor region at the lower end surface of the first semiconductor region.

In addition, the semiconductor device of Claim 1 further requires a fourth semiconductor region having inner surface being in metallurgical contact with the side boundary surface of the first semiconductor region, the fourth semiconductor region being disposed being the second and the third semiconductor regions.

In contrast, the inner surface of region 10 of *Jambotkar* never metallurgically contacts with the side boundary surface of region 16, because region 12 is interposed between region 10 and region 16. Moreover, region 10 of *Jambotkar* is clearly not disposed between region 14 and region 12. Therefore, *Jambotkar* also fails to disclose a fourth semiconductor region having inner surface being in metallurgical contact with the side boundary surface of the first semiconductor region, the fourth semiconductor region being disposed being the second and the third semiconductor regions.

Claims 2-9

Claims 2-9 depend from independent Claim 1. The remarks made above in support of independent Claim 1 are equally applicable to distinguish the dependent claims from *Jambotkar*.

Claims 12 and 13

Claims 12 and 13 also requires subject matters that *Jambotkar* fails to disclose. For the reasons discussed above in relation with Claim 1, Claims 12 and 13 are also not anticipated by *Jambotkar*.

Third Response

Application Serial No. 10/013,087

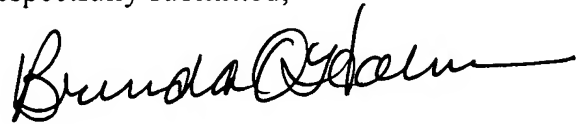
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BEST AVAILABLE

CONCLUSION

The foregoing is submitted as a complete response to the Office Action identified above. This application should now be in condition for allowance, and the Applicant solicits a notice to that effect. If there are any issues that can be addressed via telephone, the Examiner is asked to contact the undersigned at 404.685.6799.

Respectfully submitted,



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